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PICKLING CUCUMBER CULTIVAR EVALUATION TRIALS

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The pickling cucumber cultivar evaluation trials were conducted at the OARDC Green Springs Crops Research Unit near Green Springs. Eighteen cultivars or lines were evaluated in the replicated trial and 26 lines were evaluated in the non-replicated observational trial.

Cultural Information

The soil is classed as a sandy loam. A broadcast application of 6-24-24 at 800 lb/A was made and incorporated prior to planting. The plots were seeded on June 8 using a Stan-Hay seeder which seeds 4 to 5 seed per ft. of row. Plants were thinned to 3 single plants per foot of row on June 27. Rows were 30 ft. long on 28-in. Centers. Cultivars were replicated 4 times in the replicated trial. Vegiben 2E at 2 lb/A was applied broadcast immediately after planting. One active hive of honey bees was placed in the plot area when the plants started to bloom. All other cultural practices during the growing season were according to standard recommendations. Weed control was excellent and no serious problems with insects or diseases developed during the season.

The plots were harvested by hand and the cucumbers were graded and sized using a commercial sizer. Fruits were classed into the following sizes and values placed on each size according to the following values:

Size	$1 Ton*	
	PCIC	Ohio
1. Less than 1 1/6 in.	120	240
2. 1 1/6 to 1 1/2 in.	60	120
3. 1 1/2 to 2 in.	40	60
4. 2 to 2 1/4 in.	20	10

* PCIC values established by the Pickling Cucumber Improvement Committee of Pickle Packers International. Ohio values based upon estimated average prices in 1973-75 period.

Time and labor limitations prevented harvesting each cultivar or line when it had reached optimum maturity for maximum returns (a few over-sized fruits in each plot). Therefore, the first harvest was made when a few over-sized fruits were present in the total plot area. This undoubtedly influenced the first-harvest yields and values, but it was felt that data from subsequent harvests would compensate for the lack of correct timing of the first harvest. Harvest started on July 22 and continued through August 9.

Growing conditions were good throughout the season. Rainfall from planting on June 8 to the end of June was 4.24 in.; July rainfall was 5.44 in.; rainfall to August 9 was 1.86 in.

Duplicate samples of fruit from size 3 of the first harvest were placed in a commercial brine tank with the cooperation of the H. J. Heinz Co., Fremont, Ohio. The samples were removed on October 19 and evaluated for percent recovery and firmness, as measured with a Magness-Taylor Pressure Tester fitted with a 5/16 in. tip. Recovery was based upon an estimate of the area of the fruit devoid of gas pockets or other separations and would give high quality slices when sliced.

The author wishes to express appreciation to the seed companies and others who provided the seed for the trials. These included Joseph Harris Co., Inc., Rochester, New York; Northrup, King and Co., Minneapolis, Minn.; Asgrow Seed Co., Kalamazoo, Mich.; Ferry-Morse Seed Co., Mountain View, Calif.; Niagara Div. FMC Corp., El Macero, Calif.; Rogers Brothers Seed Co., Idaho Falls, Idaho; Petoseed Co., Inc., Saticoy, Calif.; Heinz U.S.A., Bowling Green, Ohio; A.L. Castle, Inc. Morgan Hill, Calif.; U.S.D.A., Madison, Wisc.; Department of Horticulture, North Carolina State University, Raleigh, N.C.; and Department of Horticulture, Michigan State University, East Lansing, MI.

TABLE 1.--First Harvest Yield from Replicated Trial of Pickling Cucumber Cultivars, 1977.

Cultivar	Source	Lot No.	Size	Tons/A = 1	2	3	4	Total	Culls
Peto Triplemech	Petoseed	1061000		.23	.93	1.41	.04	2.61	.28
Lucky Strike	Petoseed	100900		.32	.77	.60	.00	1.69	.06
C-589	Harris	PW-6103		.20	.47	.74	.21	1.62	.16
SMR-58	Ferry-Morse	12720-13769		.13	.15	.00	.00	.28	.04
FX-4164	Ferry-Morse	7614783		.21	.96	1.48	.41	3.06	.25
NCX-5003	Niagara	2145		.16	.27	.24	.00	.67	.34
Hyclas	Rogers	---		.17	.27	.59	.16	1.19	.03
Multipik	Petoseed	---		.24	.63	.75	.00	1.62	.09
Calypso	NCSU	---		.24	.65	.71	.00	1.60	.08
XP-1149	Asgrow	VG-43A		.17	.77	3.38	.72	5.04	.51
Pioneer	NK			.18	.53	1.61	.45	2.77	.23
H580M	Heinz	915		.19	.79	1.12	.05	2.15	.09
H 1077	Heinz	914		.19	.35	1.32	.18	2.04	.31
MSU 76	MSU	---		.12	.33	1.06	.22	1.73	.10
Premier	Asgrow	97226		.15	.63	1.45	.16	2.39	.24
EXP-823	NK	38031-75800		.20	.88	.89	.14	2.11	.13
USDA 744X1082	U.S.D.A.	---		.26	.81	1.37	.00	2.44	.56
Castlepickle-183	Castle	---		.18	.56	.73	.12	1.59	.25
		LSD .05 =		.32	.48	1.79	.71	2.18	.45

TABLE 2.--Yields From Replicated Trial of Pickling Cucumber Cultivars, 1977

Cultivar	Yield at 4 Harvest Dates - Tons/A 7/22	7/28	8/3	8/8	Total
Peto Triplemech	2.61	5.06	3.56	4.24	15.47
Lucky Strike	1.69	5.77	3.94	4.64	16.04
C-589	1.62	6.26	4.35	4.95	17.19
SMR-58	.28	3.09	2.00	3.38	8.75
FX-4164	3.06	4.98	4.13	3.72	15.89
NCX-5003	.67	5.29	4.19	5.09	15.24
Hyclas	1.19	4.77	3.32	3.15	12.43
Multipik	1.62	5.06	4.02	4.55	15.25
Calypso	1.60	5.71	3.87	5.06	16.24
XP-1149	5.04	4.47	2.36	3.00	14.87
Pioneer	2.77	6.54	4.30	4.58	18.19
H-580-M	2.15	4.85	3.27	3.83	14.10
H-1077	2.04	5.43	4.47	4.40	16.34
MSU-76	1.73	5.16	4.80	4.51	16.20
Premier	2.39	4.93	2.74	3.92	13.98
EXP-823	2.11	5.11	3.66	4.73	15.61
U.S.D.A. 744X1082	2.44	4.58	3.10	2.74	12.86
Castlepickle 183	1.59	5.34	4.23	4.32	15.48
LSD .05 =		2.18			4.34

TABLE 3.--Values of Harvested Cucumbers from Replicated Trial Based on PCIC Values -- 1977.

Cultivar	Value of 4 Harvest Dates - $/A				
	7/22	7/28	8/3	8/8	Total
Peto Triplemech	141	304	204	212	861
Lucky Strike	109	307	222	234	872
C-589	86	313	211	230	840
SMR-58	25	143	95	145	408
FX-4164	149	273	210	178	810
NCX-5003	44	269	197	230	740
Hyclas	63	245	165	148	621
Multipik	97	287	201	216	801
Calypso	96	313	218	251	878
XP-1149	216	233	133	149	731
Pioneer	127	339	248	221	935
H-580-M	116	272	176	190	754
H-1077	100	267	217	200	784
MSU-76	81	263	226	215	785
Premier	117	262	155	180	714
EXP-823	116	283	192	233	824
U.S.D.A. 744X1082	134	253	165	140	692
Castlepickle 183	87	274	186	214	761
LSD .05 =		66			131

TABLE 4.--Values of Harvested Cucumbers from Replicated Trials Based on Estimated Ohio Values -- 1977.

Cultivar	Value of 4 Harvest Dates - $/A				
	7/22	7/28	8/3	8/8	Total
Peto Triplemech	252	571	365	369	1557
Lucky Strike	206	548	397	411	1562
C-589	151	541	348	385	1425
SMR-58	50	241	158	233	682
FX-4164	258	498	355	305	1416
NCX-5003	84	470	325	380	1259
Hyclas	109	431	279	249	1068
Multipik	179	526	344	368	1417
Calypso	178	569	383	438	1568
XP-1149	344	415	233	255	1247
Pioneer	208	598	443	380	1629
H-580-M	208	495	310	332	1345
H-1077	168	460	361	330	1319
MSU-76	134	466	371	370	1341
Premier	200	465	275	300	1240
EXP-823	210	518	330	402	1460
USDA 744X1082	241	466	282	246	1235
Castlepickle 183	156	484	298	372	1310
LSD .05 =		94			189

TABLE 5.--First Harvest Yield From Observational Trial of Pickling Cucumbers -- 1977

Line	Source	Lot No.	Size =	Tons/A 1	2	3	4	Total	Culls
NCX 5011	Niagara	9677		.16	.41	.54	.13	1.24	.03
NCX 5012	Niagara	8206		.09	.95	3.19	1.20	5.43	.19
PSX 574	Petoseed	---		.25	1.01	1.77	.13	3.16	.19
PSR 774	Petoseed	---		.28	.69	1.10	.73	2.80	.13
PSR 3774	Petoseed	---		.38	.63	1.89	.51	3.41	.19
JR 89	Harris	PW 7045		.09	.73	2.43	2.21	5.46	.13
38 M 11	Harris	PW 315		.09	.82	3.79	1.23	5.93	.09
11 M 11	Harris	PW 325		.32	.63	1.74	.25	2.94	.06
1189	Harris	PW 7025		.38	.79	.98	.00	2.15	.06
38C2	Harris	PW 10332		.13	.63	3.60	1.64	6.00	.06
3889	Harris	PW 7015		.44	.51	1.96	1.14	4.05	.09
11C2	Harris	PW 1004		.28	.57	.35	.00	1.20	.00
JR-11	Harris	PW 7115		.22	.57	1.67	.54	3.00	.03
59-R	Harris	PW 6083		.28	.44	1.86	.00	2.58	.09
NCSU 77-G37L	NCSU	---		.28	.73	1.86	.85	3.72	.06
NCSU 77-G29	NCSU	---		.25	.73	1.14	.00	2.12	.06
NCSU 77-G30	NCSU	---		.19	.76	2.27	.19	3.41	.06
H-916	Heinz	866		.09	.69	3.91	1.89	6.58	.19
H-768	Heinz	816		.16	.57	.79	.00	1.52	.06
C5ND	Harris	---		.22	.85	3.25	1.58	5.90	.38
4JDM	Harris	PW 10086		.16	1.01	.98	.00	2.15	.03
C5DM	Harris	PW 10076		.51	.54	.60	.00	1.65	.00
C4DM	Harris	PW 10066		.32	1.01	2.90	.00	4.23	.06
11DM	Harris	PW 10096		.25	1.17	1.42	.00	2.84	.06
129A	Harris	PW 10006		.09	.16	.06	.00	.31	.00
NCX 5004	Niagara	2152		.16	.25	2.30	2.37	5.08	.19

TABLE 6.--Yield From Observational Trial of Pickling Cucumbers -- 1977

Line	Yield of 4 Harvest Dates Tons/A				
	7/25	8/1	8/4	8/8	Total
NCX 5011	1.24	5.97	1.36	4.39	12.96
NCX 5012	5.43	5.49	1.58	2.65	15.15
PSX 574	3.16	6.34	1.64	3.28	14.42
PSR 774	2.80	9.85	1.58	4.48	18.71
PSR 3774	3.41	5.11	2.02	2.49	13.03
JR 89	5.46	7.07	1.93	2.94	17.40
38M11	5.93	5.02	1.83	2.18	14.96
11M11	2.94	6.53	1.45	3.57	14.49
1189	2.15	6.75	1.89	4.42	15.21
38C2	6.00	6.38	1.33	2.46	16.17
3889	4.05	8.43	1.48	3.57	17.53
11C2	1.20	7.26	1.17	3.72	13.35
JR 11	3.00	4.70	1.96	2.11	11.77
59-R	2.58	9.37	1.33	3.72	17.00
NCSU 77-G37L	3.72	7.29	2.11	2.71	15.83
NCSU 77-G29	2.12	6.79	1.33	3.44	13.68
NCSU 77-G30	3.41	8.11	2.18	2.87	16.57
H-916	6.58	6.06	2.46	2.40	17.50
H-768	1.52	4.92	1.23	2.59	10.26
C5ND	5.90	6.63	2.49	3.00	18.02
4JDM	2.15	6.85	1.58	4.10	14.68
C5DM	1.65	8.78	1.52	3.72	15.67
C4DM	4.23	7.48	3.31	3.16	18.18
11DM	2.84	4.64	.60	1.20	9.28
129A	.31	4.29	1.58	1.39	7.57
NCX-5004	5.08	6.28	.76	2.05	14.17

TABLE 7.--Values of Harvested Cucumbers from Observational Trial Based on PCIC Values -- 1977

Line	Value from 4 Harvest Dates $/A				
	7/28	8/1	8/4	8/8	Total
NCX 5011	68	292	125	219	704
NCX 5012	220	279	128	140	767
PSX 574	164	324	101	164	753
PSR 774	134	437	116	215	902
PSR 3774	169	252	136	145	702
JR 89	196	332	134	152	814
38M11	237	263	129	133	762
11M11	150	302	74	189	715
1189	132	314	112	223	781
38C2	230	307	130	143	810
3889	184	406	142	181	913
11C2	82	334	111	211	738
JR 11	138	269	146	123	676
59-R	135	426	116	230	907
NCSU 77-G37L	169	362	187	151	869
NCSU 77-G29	119	336	128	189	772
NCSU 77-G30	163	399	210	198	970
H 916	247	285	158	131	821
H 768	85	229	110	135	559
C5ND	239	324	170	158	891
4JDM	119	356	165	227	867
C5DM	117	410	153	187	867
C4DM	215	360	235	182	992
11DM	157	223	61	74	515
129A	23	204	83	77	387
NCX 5004	174	299	80	83	636

TABLE 8.--Additional Observations on Plant Type and Fruit Characteristics*

	Plant				Fruit		
Line	Vigor	PF	Branch	Gen. Appear.	L/D	Color	Gen. Appear.
Peto Triplemech	4.5	3.7	4.2	4.5	2.87	4.5	4.5
Lucky Strike	4.5	2.5	2.5	3.5	2.82	4.5	3.5
C 589	4.5	2.5	4.0	3.5	3.00	4.5	4.0
SMR 58	4.2	1.0	2.5	2.2	3.00	3.0	4.0
FX 4164	4.5	4.7	4.2	4.2	2.72	3.5	4.5
NCX 5003	4.2	3.2	2.5	4.0	2.80	3.5	4.0
Hyclas	3.7	2.2	4.2	2.5	2.55	3.5	4.5
Multipik	4.5	2.2	3.7	3.2	3.09	4.0	4.0
Calypso	4.2	1.7	3.5	3.5	3.10	4.0	4.0
XP 1149	3.2	3.2	2.5	3.7	2.77	3.5	3.5
Pioneer	4.2	3.2	3.7	3.5	3.03	3.5	4.0
H-580M	3.7	2.7	3.0	3.5	3.17	4.5	4.0
H 1077	4.2	3.5	3.0	4.2	2.72	3.0	3.5
MSU 76	3.7	3.5	3.7	3.5	3.05	3.0	4.5
Premier	3.7	1.5	2.5	4.5	2.62	3.5	4.0
EXP 823	4.0	2.7	3.7	3.5	3.00	3.0	3.0
USDA 744x1082	4.5	4.5	4.2	4.0	2.91	3.5	3.0
Castlepickle 183	4.2	2.2	2.0	3.2	2.62	4.0	4.5

* Subjective Ratings: Vigor 1 = Very low vigor; 5 = Highly vigorous;
PF: 1 = Monoecious; 5 = Very predominately female in sex expression
Branching: 1 = No branches at first & second nodes; 5 = All first and second nodes have branches & no crown fruit.
General Appearance: 1 = Very poor, weak plants with low yield potential; 5 = Vigorous plants with 3 or more fruits set per plant and high yield potential.
L/D: Length/Diameter ratio.
Color: 1 = Very light green color; 5 = Very dark green
General Appearance: 1 = Very poor; 5 = Excellent appearance; uniform color, moderately warty, blocky.

TABLE 9.--Evaluation of Brine-Stock of Samples from Size 3 of Replicated Trial -- 1977.

Cultivar	Recovery* (%)	Firmness (PSI)
Peto Triplemech	82.45	15.17
Lucky Strike	58.20	16.14
C 589	60.60	16.63
SMR 58	-----	-----
FX 4164	73.70	15.50
NCX 5003	67.50	16.06
Huclas	75.25	17.15
Multipik	93.10	16.40
Calypso	81.85	17.10
XP 1149	69.95	15.52
Pioneer	85.00	15.97
H 580M	94.35	17.05
H 1077	84.35	15.65
MSU 76	91.20	14.90
Premier	98.10	15.62
EXP 823	99.35	17.60
USDA 744x1082	91.85	15.40
Castlepickle 183	95.60	16.58
LSD .05 =	N.S.	.99

* Recovery is based upon an estimate of the area of the fruit which would be devoid of gas pockets due either to carpel separation, balloon, lens or honeycomb, bloating and would make usable slices when sliced.

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